Air Quality Permit

Issued To: Rocky Mountain Power, Inc.
Hardin Generator Project
P.O. Box 5650
Bismarck, ND 58506-5650

Permit #3185-00
Application Received: 2/01/02
Application Complete: 3/27/02
Preliminary Determination Issued: 5/02/02
Department Decision Issued: 5/24/02
Permit Final: 6/11/02
AFS Number: 003-0018

An air quality permit, with conditions, is hereby granted to Rocky Mountain Power, Inc. (RMP) pursuant to Sections 75-2-204 and 211, Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.701, *et seq*., as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

RMP submitted a permit application to construct a nominal 113-megawatt (MW) electrical power generation facility approximately 1.2 miles northeast of Hardin, Montana. The legal description of the site location is the Southwest ¼ of Section 12, Township 1 South, Range 33 East, in Big Horn County, Montana.

B. Permitted Equipment

RMP is proposing to construct and operate a stationary facility to produce electrical power for delivery to the existing power grid. The facility will consist of a pulverized coal-fired (PC-fired) boiler and a steam turbine, which will drive an electric generator for producing a nominal 113-MW of electric power (8.5-MW of the power produced will be used by RMP). A complete list of the permitted equipment for the coal-fired steam-electric generating station is contained in the permit analysis.

Section II: Limitations and Conditions

A. General Plant Requirements

1. RMP shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

2. RMP shall not cause or authorize emissions to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

3. RMP shall treat all unpaved portions of the access roads, parking lots, and general plant area with fresh water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.2 (ARM 17.8.710).

4. RMP shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart Y (ARM 17.8.340 and 40 CFR 60, Subpart Y).

5. RMP shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements of the Acid Rain Program contained in 40 CFR 72-78 (40 CFR 72 through 40 CFR 78).

B. PC-fired Boiler

1. Emissions from the Boiler stack shall not exceed the following limits:

CO	0.15 lb/MMBtu (ARM 17.8.715)
NO_x	0.09 lb/MMBtu based on a 30-day rolling average (ARM 17.8.715)
SO_2	0.15 lb/MMBtu based on a 30-day rolling average (ARM 17.8.715)
PM_{10}	0.015 lb/MMBtu (ARM 17.8.715)
VOC	0.0034 lb/MMBtu (ARM 17.8.715)

2. The Boiler stack shall stand no less than 350 feet above ground level (ARM 17.8.710).

3. RMP shall install and operate a Selective Catalytic Reduction (SCR) unit on the PC-fired Boiler as specified in Permit Application #3185-00 (ARM 17.8.715).

4. RMP shall install and operate a wet venturi scrubber system on the PC-fired Boiler as specified in Permit Application #3185-00 (ARM 17.8.715).

5. RMP shall install a multiclone to operate in combination with the wet venturi scrubber on the PC-fired Boiler as specified in Permit Application #3185-00 (ARM 17.8.715).

C. Coal Transfer, Coal Milling, Fuel Transfer, Lime Transfer, and Bottom and Fly Ash Transfer

1. Emissions from the baghouses/bin vents: D1, D2, and D3 shall not exceed 0.01 grains/dscf of particulate emissions (ARM 17.8.715).

2. RMP shall install and maintain enclosures surrounding the following process operations (ARM 17.8.715):

   a. Coal Transfer:
      i. Truck to below-grade hopper
      ii. Below-grade hopper to Conveyor 1 (C1)
      iii. C1 to Crusher
      iv. Crusher to C2/C3
      v. C2 to C4
      vi. C3/C4 to stockpile
      vii. Stockpile to C5/C6
      viii. C5/C6 to C7/C8
      ix. C7/C8 to C9/C10
      x. C9/C10 to coal mills
   b. Coal Milling
   c. Fuel Transfer: Coal mills to boiler

3. Draft pressure from the boiler shall be present to provide particulate control for the following processes: Coal transfer from C9/C10 to coal mills, coal milling, and fuel transfer from coal mills to boiler (ARM 17.8.715).

D. Testing Requirements

1. RMP shall test the PC-fired Boiler for NO_x and CO, concurrently, within 180 days of initial start-up of the Boiler to demonstrate compliance with the NO_x and CO emission limits contained in Section II.B.1. The testing shall continue on an every 2-year basis, or according to another testing/monitoring schedule/demonstration as may be approved by the Department of Environmental Quality (Department) (ARM 17.8.105 and 17.8.710).

2. RMP shall test the PC-fired Boiler for SO_2 within 180 days of initial start-up of the Boiler to

demonstrate compliance with the SO_2 emission limit contained in Section II.B.1. The testing shall continue on an every 2-year basis, or according to another testing/monitoring schedule/demonstration as may be approved by the Department (ARM 17.8.105 and 17.8.710).

3. RMP shall test the PC-fired Boiler for PM_{10} within 180 days of initial start-up of the Boiler to demonstrate compliance with the PM_{10} emission limit contained in Section II.B.1. The testing shall continue on an every 5-year basis, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and 17.8.710).

4. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

5. The Department may require additional testing (ARM 17.8.105).

E. Operational Reporting Requirements

1. RMP shall supply the Department with annual production information for all emission points, as required, by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in Section I of the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. RMP shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.705(1)(r) that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.705(1)(r) (iv) (ARM 17.8.705).

3. The records compiled in accordance with this permit shall be maintained by RMP as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.710).

F. Continuous Emission Monitoring Systems (CEMS)

1. RMP shall install, operate, and maintain an SO_2 CEMS and a flow monitoring system on the PC-fired Boiler stack (40 CFR 72 through 40 CFR 78).

2. RMP shall install, operate, and maintain a NO_X CEMS on the PC-fired Boiler stack (40 CFR 72 through 40 CFR 78).

3. RMP shall determine CO_2 emissions from the PC-fired Boiler Stack by one of the methods listed in 40 CFR 75.10 (40 CFR 72 through 40 CFR 78).

G. Notification

RMP shall provide the Department with written notification of the following dates within the specified time periods (ARM 17.8.710):

1. Commencement of construction of the power generation facility within 30 days after commencement of construction;

2. Anticipated start-up date of the PC-fired Boiler postmarked not more than 60 days nor less than 30 days prior to start up; and

3. Actual start-up date of the PC-fired Boiler within 15 days after the actual start-up of the Boiler.

Section III: General Conditions

A. Inspection - The recipient shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if the recipient fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving any permittee of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq.* (ARM 17.8.717).

D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.

E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.

F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

G. Construction Commencement - Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked.

H. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, the continuing validity of this permit is conditional upon the payment by the permittee of an annual operation fee, as required, by that Section and rules adopted thereunder by the Board.

Permit Analysis
Rocky Mountain Power, Inc.
Permit #3185-00

I. Introduction/Process Description

A. Permitted Equipment

On March 27, 2002, a complete permit application was submitted by Rocky Mountain Power, Inc. (RMP) to construct a 113-megawatt (MW) electrical power generation facility approximately 1.2 miles northeast of Hardin, Montana. The facility will consist of a pulverized coal-fired (PC-fired) boiler and a steam turbine, which will drive an electric generator to produce a nominal 113-MW of electric power (8.5-MW of the power produced will be used by RMP). The legal description of the site location is the Southwest ¼ of Section 12, Township 1 South, Range 33 East, in Big Horn County, Montana. The following equipment are permitted for this facility:

1. 1,304 million Btu per hour (MMBtu/hr) PC-fired Boiler (with associated steam turbine and electric generator) with a 350-foot stack
2. Cooling tower
3. Coal, lime, and ash handling systems
   a. D1 – Coal Handling Baghouse
   b. D2 – Lime Silo (S1) Bin Vent
   c. D3 – Fly Ash Silo (S3) Bin Vent

If, following Permit #3185-00 going final, RMP requests a permit alteration to reduce the stack height, a full analysis (as appropriate), equivalent to a Prevention of Significant Deterioration (PSD) of Air Quality analysis will be required. In addition to the Montana Department of Environmental Quality (Department), the analysis will be forwarded to the appropriate Federal Land Managers and EPA for review.

In response to comments on the preliminary determination of Permit #3185-00, the BACT analysis was further clarified as to consideration given other coal combustion technologies and why those technologies were eliminated.

B. Source Description

1. Boiler and Associated Emission Control

The proposed boiler is a 1968 wet-bottom, wall-fired boiler manufactured by Mitchell of the United Kingdom. The boiler will be relocated from its current site in South Africa to the proposed Hardin, Montana site. The boiler is configured with 4 pulverizers and 12 burners with opposed firing. The maximum heat input rate to the boiler will be 1,304 MMBtu/hr, which will be used to produce up to 900,000 pounds of steam per hour. Natural gas, diesel, or propane will be used to fire the boiler during periods of start-up. During normal operations, the boiler will be fueled with pulverized coal. At this time, RMP anticipates the boiler will combust coal owned by the Tribe of Crow Indians from the Absaloka Mine. The mine, which is owned by Westmoreland Resources, Inc., is located approximately 30 miles east of Hardin. Using the heat content of 8,700 Btu per pound (lb) of Absaloka Mine coal, as provided by Westmoreland Resources, Inc., the coal-firing rate will be approximately 75 tons per hour (ton/hr) and 656,500 tons per year (tpy).

Boiler combustion gases (flue gases) will be routed first to a multiclone, which will remove up to 96% of the particulate matter (PM). Using PM controls early in the emission control process will work to prevent catalyst fouling during subsequent NO_X control procedures. From the multiclone, flue gas will be directed to a Selective Catalytic Reduction (SCR) unit that will remove approximately 85% of nitrogen oxides (NO_X). From the SCR unit, the flue gas will then be routed to a wet venturi scrubber that uses a lime reagent.

The wet scrubber will consist of a venturi rod deck particulate control scrubber followed by a packed tower spray scrubber that will remove 90% of the sulfur dioxide (SO_2) from the Absaloka coal. The scrubber will also remove approximately 99% of acid gases including hydrochloric (HCl) and hydrofluoric (HF) acids. Additionally, the scrubber will provide significant removal of metals including antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, mercury, and manganese. A large portion of the water-soluble Volatile Organic Compounds (VOCs) in the gas stream will be removed by absorption into the liquid solvent of the wet scrubber. From the wet scrubber, the flue gas will exit to the atmosphere. The proposed stack height is 350 feet.

2. Cooling Tower

A wet cooling tower will be used to dissipate the heat from the steam turbine by using the latent heat of water vaporization to exchange heat between the process and the air passing through the cooling tower. The proposed cooling tower will be an induced, counter flow draft design equipped with cellular (honeycomb) drift eliminators. The make-up water rate for the proposed cooling tower will be approximately 1,300 gallons per minute (gpm). Water will come from the Bighorn River. There will be no direct discharge to the waters of the state from the operation of this cooling tower. Blow-down will be treated to maximize water recovery. Treatment will include a reverse osmosis unit followed by a condensate polisher (de-ionizer) and a small dehydrator. Discharge from the blow-down will be reduced to less than 30 gpm, which will either be disposed of in the municipal wastewater treatment plant or evaporated onsite.

3. Fuel Storage and Handling

According to Westmoreland Resources, Inc., the coal will have an "as-received" moisture content of 24.5%. This high moisture content will serve to inhibit fugitive dust emissions during storage and handling activities. Fugitive emissions that do result from coal handling activities will be mitigated by the use of enclosed coal storage and handling operations (coal storage will be located in the coal storage building, not in outside piles) and fabric filter dust collectors (baghouses), specifically the induced draft baghouse, D1, designed to maintain a grain outlet loading of no more than 0.01 grains per dry standard cubic foot of flow (gr/dscf).

Coal will be transported the 30 miles from the Absaloka Mine using over-the-road tractor-trailer transport vehicles. Coal will be delivered around the clock at the rate of approximately 1 ½ trucks per hour (3 trucks every 2 hours). Some of the empty coal trucks may be used to haul ash and/or scrubber sludge to a landfill site (municipal or otherwise) for disposal.

4. Lime Handling Operations

As previously mentioned, the proposed facility will use a wet scrubber with a lime reagent to control PM, SO_2, VOC, and certain Hazardous Air Pollutant (HAP) emissions. Lime will be delivered by truck at a rate of approximately 1 truck per day. Lime will be used at a rate of 2,200 lb/hr and stored in an overhead silo (S1). S1 will be vented through a 1,000 cubic feet per minute bin vent (D2) that will be designed to maintain a grain outlet loading of no more than 0.01 gr/dscf.

Spent lime or sludge from the scrubber will be stored in a waste bleed accumulation tank that will hold up to 5 hours worth of sludge. A hydroclone and a rotary vacuum filter will separate the water from the solids. The recovered water will be recycled back to the mixing tank. The dewatered gypsum filter cake will be stored in an enclosed dumpster and marketed as a raw material for drywall manufacturers. However, until a specific end user is identified, trucks will remove the sludge from the dumpster for landfill disposal.

5. Ash Handling Operations

Combustion of coal in the boiler will produce ash. Approximately 20-30% of the ash will be larger particles (bottom ash), and approximately 70-80% of the ash will be fine particles (fly ash). The ash (both bottom ash and fly ash) will be temporarily stored on-site in 2 silos. Bottom ash will be sluiced to the bottom ash silo (S2). Most of the fly ash will be collected by the multiclone and pneumatically transferred to the fly ash silo (S3). The charging of S3 will be controlled by a bin vent (D3), designed to maintain an outlet grain loading of no more than 0.01 gr/dscf. The remainder of the fly ash will be collected in the wet venturi scrubber and processed as scrubber sludge.

Until beneficial uses for the boiler ash are found (for example, fly ash being used by local concrete products manufacturers), the ash will be removed from the silos and landfilled. As the ash will not be classified as a hazardous waste, it can be disposed of in the local municipal landfill. Bottom ash will be sluiced from S2 into the truck. Fly ash will be gravity-fed from S3 into the truck through a retractable load-out spout. Because the bottom ash will be wet (approximately 30% moisture), minimal fugitive emissions are expected during its transfer. Air displaced by the fly ash loading will be vented through S3 and its associated bin vent (D3).

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for the location of complete copies of all applicable rules and regulations, or copies where appropriate.

A. ARM 17.8, Subchapter 1, General Provisions, including, but not limited to:

1. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary, using methods approved by the Department. Based on the emissions from the PC-fired Boiler, the Department determined that initial testing for CO, NO_X, SO_2, and PM_{10} is necessary. Furthermore, based on the emissions from the PC-fired Boiler, the Department determined that additional testing every 2 years is necessary to demonstrate compliance with the CO, NO_X, and SO_2 limits and additional testing every 5 years is necessary to demonstrate compliance with the PM_{10} emission limit.

2. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

   RMP shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

3. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly, by telephone, whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.

4. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of

any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2, Ambient Air Quality, including, but not limited to:

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.213 Ambient Air Quality Standard for Ozone
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

RMP must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3, Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into an outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This section requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precaution is taken to control emissions of airborne particulate. (2) Under this section, RMP shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.340 Standard of Performance for New Stationary Sources. This section incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). The owner or operator or any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the applicable standards and provisions of 40 CFR Part 60.

   40 CFR Part 60, Subpart A – General Provisions. This subpart applies to all affected equipment or facilities subject to an NSPS subpart listed below.

   40 CFR 60, Subpart D - Standards of Performance Fossil Fuel Fired Steam Generators. This subpart would apply to the RMP PC-fired Boiler because it is a fossil-fuel-fired steam generator with a heat input capacity greater than 250 MMBtu/hr. However, it does not apply because the PC-fired Boiler was built in 1968, prior to the applicability date of August 17, 1971. Neither the relocation of the PC-fired Boiler from South Africa to Montana nor the $2 million retrofitting constitute modification or reconstruction of the Boiler as those terms are defined in 40 CFR 60. Therefore, 40 CFR 60, Subpart D is not applicable.

   40 CFR 60, Subpart Da - Standards of Performance for Electric Utility Steam Generating Units. This subpart would apply to the RMP PC-fired Boiler because it is an electric utility steam generating unit with a heat input capacity greater than 250 MMBtu/hr. However, it does not apply because the PC-fired Boiler was built in 1968, prior to the applicability date of September 18, 1978. Neither the relocation of the PC-fired Boiler from South Africa to Montana nor the $2 million retrofitting constitute modification or reconstruction of the Boiler as those terms are defined in 40 CFR 60. Therefore, 40 CFR 60, Subpart Da is not applicable.
   40 CFR Part 60, Subpart Y – Standards of Performance for Coal Preparation Plants. This

subpart applies to the RMP facility because RMP would be constructed after October 24, 1974, and the facility will pulverize or "crush" more than 200 tons/day of coal.

4. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This section incorporates, by reference, 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP). Since the emission of Hazardous Air Pollutants (HAPs) from the RMP coal-fired steam-electric generating facility is less than 10 tons per year for any individual HAP and less than 25 tons per year for all HAPs combined, the RMP facility is not subject to the provisions of 40 CFR Part 61. In addition, 40 CFR Part 61 does not apply because it does not contain any requirements applicable to RMP.

5. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This section incorporates, by reference, 40 CFR Part 63, NESHAP for Source Categories. Since the emission of HAP from the RMP coal-fired steam-electric generating facility is less than 10 tons per year for any individual HAP and less than 25 tons per year for all HAPs combined, the RMP facility is not subject to the provisions of 40 CFR Part 63.

D. ARM 17.8, Subchapter 5, Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This section requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. RMP submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department; and the air quality operation fee is based on the actual, or estimated actual, amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.701 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.704 General Procedures for Air Quality Preconstruction Permitting. This air quality preconstruction permit contains requirements and conditions applicable to both construction and subsequent use of the permitted equipment.

3. ARM 17.8.705 When Permit Required--Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use any air contaminant sources that have the potential to emit more than 25 tons per year of any pollutant. RMP has the potential to emit greater than 25 tons per year of PM, particulate matter < 10 µm (PM_{10}), NO_X, SO_2, and carbon monoxide (CO); therefore, a permit is required.
4. ARM 17.8.707 Waivers. ARM 17.8.706 requires the permit application to be submitted 180

days prior to construction. This rule allows the Department to waive this time limit. The Department hereby waives this time limit.

5. ARM 17.8.710 Conditions for Issuance of Permit. This section requires that RMP demonstrate compliance with applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. RMP demonstrated compliance with applicable rules and standards as required for permit issuance.

6. ARM 17.8.715 Emission Control Requirements. RMP is required to install on the new or altered source the maximum air pollution control capability that is technically practicable and economically feasible, except that Best Available Control Technology (BACT) shall be used. A BACT analysis was conducted for sources of NO_X, SO_2, CO, PM_{10}, and VOCs. The BACT analysis can be found in Section IV.

7. ARM 17.8.716 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

8. ARM 17.8.717 Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving RMP of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.701, *et seq.*

9. ARM 17.8.720 Public Review of Permit Applications. This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. RMP submitted an affidavit for the February 7, 2002, issue of the Big Horn County News, a newspaper of general circulation in Big Horn County, as proof of compliance with the public notice requirement.

10. ARM 17.8.731 Duration of Permit. An air quality permit shall be valid until revoked or modified as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, that in no event may be less than 1 year after the permit is issued.

11. ARM 17.8.733 Modification of Permit. An air quality permit may be modified for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase in emissions because of those changed conditions. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.

12. ARM 17.8.734 Transfer of Permit. This section states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.
Because the RMP facility is a fossil fuel-fired steam-electric plant of more than 250 MMBtu/hr

heat input, it is considered a “listed” source. As a listed source, the major source threshold under the Prevention of Significant Deterioration (PSD) regulations is lowered from 250 tons per year to 100 tons per year. Potential emissions of PM, PM_{10}, NO_X, SO_2, and CO for the RMP facility are greater than the 100 ton per year “listed” major source threshold; therefore, the PSD program applies to the RMP facility.

G. ARM 17.8, Subchapter 12, Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:

   a. Potential To Emit (PTE) > 100 tons/year of any pollutant.

   b. PTE > 10 tons/year of any one HAP, or PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule.

   c. Sources with the PTE > 70 tons/year of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3185-00 for RMP, the following conclusions were made:

   a. The facility’s PTE is greater than 100 tons/year for several criteria pollutants.

   b. The facility’s PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAPs.

   c. This facility is not located in a serious PM_{10} nonattainment area.

   d. This facility is subject to a current NSPS standard (40 CFR 60, Subpart Y).

   e. This facility is not subject to any current NESHAP standards.

   f. This facility is a Title IV affected source.

   g. This facility is not an EPA designated Title V source.

   Based on the above information, the RMP facility is a major source for Title V and, thus, a Title V Operating Permit is required.

III. BACT Determination

A BACT determination is required for each new or altered source. RMP shall install on the new source the maximum air pollution control capability that is technically practicable and economically feasible, except that the BACT shall be utilized. A BACT analysis has been performed for the following boiler emissions: CO, NO_X, SO_2, PM_{10}, and VOCs. A BACT analysis was also performed for PM_{10} emissions from the fuel handling and storage, lime handling and storage, and ash handling and storage.

Specific to the PC-fired Boiler, both IGCC and CFB technologies were reviewed initially in the process; however, both are better suited to poor quality fuel (such as high sulfur/low heating value coal or coal mine waste). PC-fired boilers are normally used with a high quality fuel (such as the coal from the Absaloka Mine, as proposed by RMP). Although both IGCC and CFB could probably achieve a slightly lower SO_2 emissions rate (with the appropriate scrubbing technology added on) than a PC-fired boiler, the reduction in emissions would be largely offset by the additional fuel that would have to be burned in order to produce the same net power output. In addition, the IGCC facilities mentioned in comment letters in response to the preliminary determination of Permit #3185-00 (Tampa Electric Company's 250 MW Polk plant and Cinergy's 250 MW Wabash River plant) were built using Department of Energy funding (49% of the total cost or $150,894,223 for Tampa Electric and 50% of total cost or $219,100,000 for Wabash River, respectively). Of viable CFB facilities listed on the Clean Coal Compendium website under the Department of Energy, all had significant funding from the Department of Energy as well (from 37% of total cost or $17,130,411 in one case to 50% or $109,608,507 in another). Without considerable financial contributions from the Department of Energy or another source, which is not available in RMP's case, these technologies are not economically feasible. And although one comment letter states that both facilities have proven track records for performance and reliability, the Tampa Electric plant has only run 21,000 hours since July of 1996. With that conclusion, the BACT analysis focused on the PC-fired Boiler.

A. Boiler CO BACT

The BACT analysis included catalytic oxidation and proper design and combustion for the Boiler. A summary of the analysis of these controls is shown below.

1. Oxidation of Post-Combustion Gases

Oxidation controls ideally break down the molecular structure of an organic compound into CO_2 and water vapor. Temperature, residence time, and turbulence of the system affect CO control efficiency. Incinerators or oxidizers have the potential for very high CO control efficiency; however, this efficiency comes at the expense of potentially increasing NO_X production. A thermal incinerator operates at temperatures ranging between 1450°F and 1600°F. Catalytic incineration is similar to thermal incineration; however, catalytic incineration allows for oxidation at temperatures ranging from 600°F to 1000°F. The catalyst systems that are used are typically metal oxides such as nickel oxide, copper oxide, manganese oxide, or chromium oxide. Due to the high temperatures required for complete destruction, fuel costs can be expensive and fuel consumption can be excessive with oxidation units. To lower fuel usage, catalytic oxidizers can be used to preheat contaminated process air in a heat recovery chamber. Oxidizer application could potentially pose additional adverse energy and environmental impacts, specifically from the disposal of the spent catalyst. The cost effectiveness of catalytic oxidation was estimated in the application for Permit #3185-00 at approximately $870 per ton.

However, based on information on file with the Department and additional research done by the Department, this option should not have moved forward through the BACT analysis in the permit application, as it is technically infeasible for coal-fired boilers.

Catalytic oxidation systems on natural gas-fired combustion turbines have demonstrated reduction efficiencies of 80-90% under optimal conditions. However, several technical problems arise when attempting to transfer the gas-fired technology to a coal-fired application. CO oxidation catalysts are very sensitive to sulfur compounds and particulates in the exhaust gas. The RMP application did include a multiclone for particulate control upstream of the CO catalyst control, but the wet scrubber (for removal of SO_2, discussed below) would be placed downstream. That would leave the catalyst bed subject to a high rate of sulfur compounds in the exhaust gas.

In comparison, the resulting SO_2 concentration in the exhaust gas from a gas-fired combustion turbine is approximately 0.15-0.30 ppmvd. The SO_2 concentration in exhaust gas from a combustion turbine burning low sulfur diesel oil is approximately 15 ppmvd. Although no long-term studies have been conducted using this type of fuel in combination with a CO catalyst system, an SO_2 concentration of 15 ppmvd would be expected to significantly shorten the life of a catalyst system. For coal-fired systems, downstream of a BACT-required SO_2 control device, a typical SO_2 concentration would be 40-60 ppmvd in the flue gas, approximately 100 times greater than the effective SO_2 exhaust gas concentration for a natural gas-fired turbine. Such SO_2 concentrations, even after SO_2 control, would poison the catalyst at a rapid rate. In addition, placing the CO catalyst system downstream of other control devices would require the exhaust stream to be reheated, with additional emissions associated with that action.

2. No Additional Control/Proper Design and Combustion

In an ideal combustion process, all of the carbon and hydrogen contained within the fuel are oxidized to carbon dioxide (CO_2) and water (H_2O). The emission of CO in a combustion process is the result of incomplete organic fuel combustion. Reduction of CO can be accomplished by controlling the combustion temperature, residence time, and available oxygen. Normal combustion practice at the facility will involve maximizing the heating efficiency of the fuel in an effort to minimize fuel usage. This efficiency of fuel combustion will also minimize fuel combustion.

3. CO BACT Determination and Summary

Based on the technical infeasibility of the CO catalyst control, the Department determined that no additional control/proper design and combustion associated with an emissions limit of 0.15 lb/MMBtu constitutes CO BACT for the PC-fired boiler.

B. Boiler NO_X BACT

Uncontrolled NO_X emissions from coal-fired utility boilers generally range from 0.5 to 1.5 lb/MMBtu on a heat input basis. Coal-fueled, wall-fired boilers average 0.9 lb/MMBtu uncontrolled NO_X emissions. The BACT analysis included Low Excess Air (LEA), Burners Out-of-Service (BOOS), Overfire Air (OFA), Low NO_X Burners (LNB), Selective Non-Catalytic Reduction (SNCR), LNB combined with OFA, and Selective Catalytic Reduction (SCR). A summary of the analysis of these controls is shown below.

1. LEA

LEA operation involves lowering the amount of combustion air to the minimum level compatible with efficient and complete combustion. Limiting the amount of air fed to the furnace reduces the availability of oxygen for the formation of fuel NO_X and lowers the peak flame temperature, which inhibits thermal NO_X formation. Emissions reductions achieved by LEA are limited by the need to have sufficient oxygen present for flame stability and to ensure complete combustion. As excess air levels decrease, emissions of CO, hydrocarbons, and unburned carbon increase, resulting in lower boiler efficiency. Other impediments to LEA operation are the possibility of increased corrosion and slagging (the formation of large agglomerates of solidified molten ash) in the upper boiler because of the reducing atmosphere created at low oxygen levels. NO_X reduction from the application of LEA is estimated at 10-20%.

2. BOOS

BOOS is a method of staging combustion by funneling all of the fuel to some of the burners. Additional combustion air is admitted through the BOOS. At the burners that remain in service, fuel-rich, oxygen-lean conditions reduce formation of thermal and fuel NO_X. BOOS typically requires little equipment modification. However, for BOOS to be feasible, the burners that remain in service must have adequate capacity to handle the additional fuel flow and the pulverizers for the burners in-service must have adequate pulverizing capabilities to accommodate the additional demand. Limitations on the use of BOOS include loss in boiler efficiency, potential for increased corrosion and slagging, increased stack opacity, and increased CO emissions. NO_X reduction from the application of BOOS is estimated at 10-

20%.

3. OFA

OFA allows staged combustion by supplying less than the stoichiometric amount of air theoretically required for complete combustion through the burners, with the remaining air injected into the furnace through overfire air ports. Having an oxygen-deficient primary combustion zone in the furnace lowers the formation of fuel NO_X. In this atmosphere, most of the nitrogen compounds are driven into the gas phase. Having combustion occur over a larger portion of the furnace lowers peak flame temperatures. Use of a cooler, less intense flame limits thermal NO_X formation. Poorly controlled OFA may result in increased CO and hydrocarbon emissions, as well as unburned carbon in the fly ash. These products of incomplete combustion would be accompanied by a decrease in boiler efficiency. OFA may also lead to reducing conditions in the lower furnace that in turn may lead to corrosion. NO_X reduction from the application of OFA is estimated at 10-25%.

4. LNB

LNBs integrate staged combustion into the burner creating a fuel-rich primary combustion zone. Fuel NO_X formation is decreased by the reducing conditions in the primary combustion zone and thermal NO_X is limited due to the lower flame temperature caused by the lower oxygen concentration. The secondary combustion zone is a fuel-lean zone where combustion is completed. Because LNBs produce longer flames, they may not be applicable for retrofit on smaller furnaces. LNBs may result in increased CO and hydrocarbon emissions, decreased boiler efficiency, and increased fuel costs. NO_X reduction from the application of LNBs is estimated at 40-50%.

5. SNCR

SNCR involves the noncatalytic decomposition of NO_X in the flue gas to nitrogen and water using a reducing agent (e.g., ammonia or urea). The reactions take place at much higher temperatures than in an SCR (as a catalyst is not in use for SNCR), typically between 1600°F and 2100°F. NO_X removal efficiency varies considerably for this technology, depending on inlet NO_X concentration, fluctuating flue gas temperature, residence time, amount and type of nitrogenous reducing agent, mixing effectiveness, and the presence of interfering chemical substances in the gas stream. As SNCR requires a flue gas temperature of 1600°F to 2100°F, additional burners would be required to raise the flue gas temperature prior to entry into the SNCR unit. Additional burners would produce additional emissions, consume additional energy resources, and increase costs. Also, physical considerations limit the placement of reagent injection nozzles and an in-line duct burner to raise temperatures. NO_X reduction from the application of SNCR is estimated at 30-60%.

6. LNB with OFA

The combination of LNB and OFA (as described above) would have an estimated NO_X reduction of 50-70%.

7. SCR

SCR is a post-combustion gas treatment technique that uses a catalyst to reduce nitric oxide (NO) and nitrogen dioxide (NO_2) to molecular nitrogen, water, and oxygen. In the SCR process, aqueous or anhydrous ammonia (NH_3) is commonly used as a reducing agent, and is injected into the flue gas upstream of the catalyst bed. NO_X and NH_3 combine at the catalyst surface, forming an ammonium salt intermediate that subsequently decomposes to produce elemental nitrogen and water. The catalyst lowers the temperature required for the chemical reaction between NO_X and NH_3. SCR works best for flue gas temperatures between 400°F and 800°F, when a minimum amount of O_2 is present. Technical factors that impact the effectiveness of this technology include the catalyst reactor design, operating temperature, type of fuel fired, sulfur content of the fuel, design of the NH_3 injection system, and the potential for catalyst poisoning. NO_X reduction from the application of SCR is estimated at 75-90%.

8. NO_X BACT Determination and Summary

The cost-effectiveness of SCR was approximately $355/ton of NO_X removed, which is appropriate in terms of cost as compared with other recent determinations. As SCR offers the highest control efficiency of the feasible control technology options and has been deemed economically and technically feasible, the Department concurs with RMP that SCR and an associated NO_X limit of 0.09 lb/MMBtu constitutes NO_X BACT for the PC-fired boiler.

C. Boiler SO_2 BACT

The BACT analysis included scrubbers and control of sulfur content in fuel. A summary of the analysis of these controls is shown below.

1. Scrubbers

SO_2 scrubbers are systems that rely upon the SO_2/alkali reaction. The types of scrubbers differ mainly in the type of reagent used and the method employed to bring the SO_2 in the flue gas in contact with the alkali reagent. Reagents successfully employed in SO_2 scrubbers include limestone (comprised mainly of calcium carbonate, $CaCO_3$), quicklime (calcium oxide, CaO), hydrated lime (calcium hydroxide, $Ca(OH)_2$), magnesium oxide (MgO), sodium hydroxide (NaOH), ammonium hydroxide (NH_4OH), and various combinations of those reagents. The reaction with SO_2 yields compounds such as $CaSO_3$, $CaSO_4$, $NaSO_4$, and NH_4SO_3, which are solids at ambient conditions and easily collected.

Contacting techniques vary somewhat but fall into two main categories: wet systems and dry systems. Wet scrubbers use a reagent slurry that is typically brought into contact with the flue gas in a scrubber "tower." The tower typically has trays, baffles, or other similar features to divert the gas stream, create a contacting surface and/or create turbulence in order to achieve maximum interaction between the SO_2 gas and the alkaline reagent. Dry systems typically spray or atomize the reagent into the flue gas stream to achieve the required contact. Many "dry" systems actually use a wet reagent slurry, which is injected into a spray changer where it contacts the flue gas stream. The hot flue gas vaporizes the water leaving a dry particulate, which either settles out in the spray chamber or is entrained in the flue gas stream and captured by the downstream particulate control device. Under the right conditions, scrubbers are capable of removing approximately 95% of the SO_2 in the boiler flue gas. Removal efficiency increases with increased reagent use, increased effectiveness of the contacting technique, and increased SO_2 in the flue gas.

2. Control of Sulfur Content in Fuel

Regionally available coals (i.e., from Montana, Wyoming, and North Dakota) contain sulfur in the range of 0.3% to over 3% by weight. Assuming a nominal higher heating value of 8,700 Btu per pound and complete conversion of all fuel-bound sulfur to SO_2, uncontrolled SO_2 emissions from the boiler fired with these coals can range from 0.69 to over 6.9 lb/MMBtu (on a heat input basis). At this time, RMP anticipates the boiler will combust coal from the Absaloka Mine. According to Westmoreland Resources, Inc., this coal will have a sulfur content of 0.64 percent. However, RMP cannot predict or control future supplies of low sulfur fuels or the price of those fuels.

Therefore, RMP proposes to install and operate a wet scrubber system to control SO_2 emissions to levels at or below 0.15 lb/MMBtu, thus combining possible control through using low sulfur fuel and an SO_2 scrubber.

3. SO_2 BACT Determination and Summary

Based on similar, recently permitted sources and the analysis provided by RMP, the Department concurs with RMP that an SO_2 emission limit of 0.15 lb/MMBtu in combination with the installation and operation of a wet scrubber, as described in Permit Application #3185-00, constitutes SO_2 BACT for the PC-fired boiler.

D. Boiler PM/PM_{10} BACT

Common methods of control for coal combustion boilers include baghouses, electrostatic precipitators, wet scrubbers, cyclone or multiclone collectors, and side-stream separators. As the combination of a wet scrubber and a multiclone (as proposed by RMP) provides control equivalent to other methods, the other methods will not be discussed further.

1. Wet Scrubber in Combination with a Multiclone

RMP proposes use of the wet scrubber (previously mentioned in the SO_2 BACT for Boiler discussion) in combination with a multiclone. Wet scrubbers, including venturi scrubbers, are applicable for PM as well as SO_2 control on coal-fired combustion sources like the PC-fired Boiler. Scrubber collection efficiency depends on particle size distribution, gas side pressure drop through the scrubber, and water (or scrubbing liquor) pressure. A multiclone is an installation of grouped cyclone separators. Multiclones (and cyclone separators, in general) are referred to as mechanical collectors and are often used as a precollector upstream of an electrostatic precipitator, fabric filter, or wet scrubber so that these devices can be specified for lower particle loadings to reduce capital and/or operating costs. The collection efficiency of a mechanical collector depends strongly on the effective aerodynamic particle diameter. The typical overall collection efficiency for mechanical collectors ranges from 90 – 95%. The control efficiency for a combination system of a wet scrubber and a multiclone can reach 99%.

2. PM/PM_{10} BACT Discussion and Summary

As the control technologies proposed by RMP are consistent with other similar, recently permitted sources, the Department concurs with RMP's proposal that a PM_{10} emission limit of 0.015 lb/MMBtu in conjunction with the requirement to use a wet scrubber and multiclone constitutes PM/PM_{10} BACT for the PC-fired Boiler.

E. Boiler VOC BACT

High volume emission streams with low gaseous pollutant concentrations (specifically VOCs, in this case) pose challenges in identifying acceptable control technologies, as most add-on control is less effective for these types of gas streams. However, the BACT analysis will evaluate good combustion practices, catalytic incineration, and adsorption procedures. A summary of the analysis of these controls is shown below.

1. Good Combustion Practices/Use of Wet Scrubber

VOC emissions are generally the product of incomplete combustion. Normal combustion practice at the facility will involve maximizing the heating efficiency of the fuel in an effort to minimize fuel consumption and costs. This practice would mitigate VOC emissions.

In addition, the base case of good combustion practices would include the possible benefit of VOC emission reduction from the wet scrubber, required under the SO_2 BACT determination for the boiler. For a conservative estimate, as the site-specific combustion gases have not been analyzed for VOC constituents (which would provide a basis for level of control possible) a control efficiency of 0% will be assumed for the base case.

2. Catalytic Incineration of Post-combustion Gases

Catalytic incineration, or oxidation, as described in Section III.A.1, uses heat to destroy gases in the exhaust stream by breaking down the molecular structure of an organic compound into CO_2 and H_2O (vapor). Catalyst control of VOCs, like CO, generally uses a metal oxide or noble metal to allow for oxidation at temperatures ranging from 600 to 1000°F. The control efficiency will be assumed at 95%. The cost effectiveness of the application of catalytic incineration would be approximately $35,845 per ton of VOC removed. Potential environmental impacts, such as spent catalyst disposal and increased CO_2 emissions are also associated with this option.

3. Adsorption

Adsorption is a concentration technology used to remove gaseous pollutants from low to medium concentration gas streams. Adsorption systems collect gaseous pollutants onto an adsorbent media with a large internal surface area. Widely used VOC adsorbents include activated carbon, silica gel, activated alumina, synthetic zeolites, fuller's earth, and other clays. Adsorptive capacity of the solid for the gas tends to increase with the gas phase concentration, molecular weight, diffusivity, polarity, and boiling point. The adsorbed pollutants are concentrated using thermal desorption and then oxidized either on-site or by a separate contractor. The conservative control efficiency for an adsorption system is estimated at 95%. Potential technical complications exist for adsorption, and technical feasibility is questionable. Based on the cost evaluation in Permit Application #3185-00, the cost effectiveness of adsorption would be approximately $32,199 per ton of VOC removed. In addition, the application of an adsorption system involves potential environmental impacts that include adsorbent disposal.

4. VOC BACT Determination and Summary

Based on similar, recently permitted sources and the analysis provided by RMP, the Department concurs with RMP that good combustion practices in combination with a VOC emission limit of 0.0034 lb/MMBtu constitute VOC BACT for the PC-fired boiler.

F. Coal Transfer from Truck Loadout through to C5/C6 (Conveyors) PM/PM_{10} BACT

RMP proposes enclosures which are vented to Baghouse D1 as BACT for the following coal transfer operations: Truck to Below-grade Hopper, Below-grade Hopper to C1, C1 to Crusher, Crusher to C2/C3, C2 to C4, C3/C4 to Stockpile, and Stockpile to C5/C6. The enclosures would trap the PM/PM_{10} and vent it to Baghouse D1. The high moisture content of the coal, which is estimated to be 24.5%, also controls PM.

Baghouses consist of one or more isolated compartments containing rows of fabric filter bags or tubes. The gas stream passes through the fabric filter, where particulate is retained on the upstream face of the bags, while the cleaned gas stream is vented to the atmosphere or to another pollution control device. The proposed limit on all of the baghouses/bin vents (D1, D2, D3) is 0.01 grain per dry standard cubic foot (gr/dscf). As the level of control on baghouses is estimated at approximately 99% and is consistent with other similar, recently permitted sources, the Department concurs that on the above mentioned coal transfer operations, enclosures vented to Baghouse D1 with a 0.01 gr/dscf limit constitutes BACT.

G. Coal Transfer from C5/C6 to C7/C8 and C7/C8 to C9/C10 PM/PM_{10} BACT

RMP proposes an enclosure over the coal transfer from C5/C6 to C7/C8 and C7/C8 to C9/C10 as BACT. The Department concurs that an enclosure over the coal transfer from C5/C6 to C7/C8 and C7/C8 to C9/C10 constitutes BACT.

H. Coal Transfer from C9/C10 to Coal Mills, Coal Milling, and Fuel Transfer from Coal Mills to Boiler PM/PM_{10} BACT

RMP proposes enclosures over the coal transfer from C9/C10 to the coal mills, the coal milling operation, and fuel transfer from the coal mills to the boiler in addition to draft pressure from the boiler and the 24.5% moisture content of the coal as BACT. The Department concurs that enclosures and draft pressure from the boiler for the above-mentioned sources constitute BACT.

I. Lime and Fly Ash Transfer PM/PM_{10} BACT

RMP proposes control using bin vents D2 and D3 for the lime transfer and fly ash transfer, respectively and a limit of 0.01 gr/dscf. The Department concurs that the bin vents, D2 and D3, for the lime and fly ash transfer in combination with the 0.01 gr/dscf limit on those bin vents constitute BACT.

J. Bottom Ash Transfer PM/PM_{10} BACT

RMP proposes control being the "wet" nature of the bottom ash to control particulate emissions from bottom ash transfer. The Department determines that using reasonable precautions (in this case, maintaining the high moisture content) to control the particulate emissions for the bottom ash transfer will constitute BACT.

IV. Emission Inventory

			Ton/Year		
Source	PM/PM_{10}	NO_x	CO	VOC	SO_x
PC-fired Boiler	85.67	514.04	856.73	19.42	856.73
Cooling Tower	5.78				
Baghouse and Bin Vents	19.53				
Truck Traffic Fugitives	0.26				
Totals	111.24	514.04	856.73	19.42	856.73

<u>PC-fired Boiler Emissions</u>

Size = 113 MW
Hours of Operation = 8,760 hr/yr
Heat Input = 1304 MMBtu/hr
Fuel Heating Value = 8,700 Btu/lb of coal

PM/PM_{10} Emissions
Emission Factor: 0.015 lb PM/MMBtu {Manufacturer's Guarantee, Permit Limit}
Calculations: 0.015 lb/MMBtu * 1304 MMBtu/hr * 8760 hr/yr * 0.0005 ton/lb = 85.67 ton/yr

NO_x Emissions
Emission Factor: 0.09 lb NOx/MMBtu {Manufacturer's Guarantee, Permit Limit}
Calculations: 0.09 lb/MMBtu * 1304 MMBtu/hr * 8760 hr/yr * 0.0005 ton/lb = 514.04 ton/yr

CO Emissions
Emission Factor: 0.15 lb CO/MMBtu {Manufacturer's Guarantee, Permit Limit}
Calculations: 0.15 lb/MMBtu * 1304 MMBtu/hr * 8760 hr/yr * 0.0005 ton/lb = 856.73 ton/yr

VOC Emissions
Emission Factor: 0.0034 lb VOC/MMBtu {Permit Limit}
Calculations: 0.0034 lb VOC/MMBtu * 1304 MMBtu/hr * 8760 hr/yr * 0.0005 ton/lb = 19.42 ton/yr

SO_x Emissions

Emission Factor: 0.15 lb/MMBtu {Manufacturer's Guarantee, Permit Limit}

Calculations: 0.15 lb/MMBtu * 1304 MMBtu/hr * 8760 hr/yr * 0.0005 ton/lb = 856.73 ton/yr

<u>Cooling Tower Emissions</u>

Water intake rate =	1,300 gpm
Total liquid drift =	0.0005 % of circulating water flow
Design circulating water rate =	210,000 gpm
Total dissolved solids (TDS) intake =	315 mg/m^3
Concentration cycles =	8
Circulating TDS =	2,520 mg/m^3
Hours of Operation =	8,760 hr/yr

PM_{10} Emissions

Calculations: 0.0005 lb drift/100 lb H2O * 210,000 gal H2O/min * 60 min/hr * 8.34 lb/gal * 2,520 lb TDS/106 lb H2O * 8760 hr/yr * 0.0005 ton/lb = 5.78 ton/yr

<u>Baghouse and Bin Vent Emissions</u>

D1 flow rate =	50,000 cfm
D2 flow rate =	1,000 cfm
D3 flow rate =	1,000 cfm
Hours of Operation =	8,760 hr/yr

PM/PM_{10} Emissions

Emission Factor: 0.01 gr/dscf {Permit limit}

D1 Calculations: 0.01 gr/dscf * 50,000 cf/min * 1 lb/7000 gr * 60 min/hr * 8760 hr/yr * 0.0005 ton/lb = 18.77 ton/yr

D2 Calculations: 0.01 gr/dscf * 1,000 cf/min * 1 lb/7000 gr * 60 min/hr * 8760 hr/yr * 0.0005 ton/lb = 0.38 ton/yr

D3 Calculations: 0.01 gr/dscf * 1,000 cf/min * 1 lb/7000 gr * 60 min/hr * 8760 hr/yr * 0.0005 ton/lb = 0.38 ton/yr

<u>Truck Traffic Fugitives</u>

Assumptions:

Distance of each round trip =	0.5 mile
Total trips =	2 trips/hr, every hour of the year
Driving surface =	paved

PM/PM_{10} Emissions (Fugitives)

Emission Factor: 0.06 lb/VMT {Calculated from AP-42 Equation, 13.2.1 (10/97)}

Calculations: 0.06 lb/VMT * 0.5 VMT/trip * 2 trips/hr *8760 hr/yr * 0.0005 ton/lb = 0.26 ton/yr

V. Ambient Air Quality Impacts

The plant site is located in the Southwest ¼ of Section 12, Township 1 South, Range 33 East, in Big Horn County, Montana. The air quality of this area is classified as either "Better than National Standards" or unclassifiable/attainment of the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. Ambient air quality modeling (ISC3) was submitted by RMP, and reviewed by the Department, that demonstrates that this facility will not cause or contribute to a violation of any ambient air quality standards.

Emissions of NO_x, CO, PM, PM_{10}, VOC, SO_2, and lead (Pb) would result from the proposed project, with NO_x, CO, PM_{10}, and SO_2 above the 100 ton per year PSD major source threshold. Air quality dispersion modeling (that factors in such parameters as wind speed, wind direction, atmospheric stability, stack temperature, stack emissions, etc.) was conducted for the facility by Bison Engineering, Inc. The modeling analyses were conducted using 7 complete years (all four seasons in 1984 and 1986-1991) of National Weather Service ambient air quality surface data from Billings and upper air data from Great Falls. The modeling inputs were based on the “worst case” emissions from the facility. Approximately 5200 receptors were used to identify the potential impacts from the proposed project. The receptors extended 10,000 meters (approximately 6 miles) in all directions. The receptor elevations were automatically calculated from Digital Elevation Model (DEM) files. The ambient analysis did not include any other sources than RMP because no major stationary sources exist within any of the significant impact areas (SIAs) or within 50 kilometers (km) beyond the SIAs. The air dispersion modeling analysis was independently reviewed by the Department.

RMP submitted a modeling analysis of the emissions from the facility in comparison to the air quality significance levels. The air quality significance level is the threshold for determining whether or not the impacts from a source are significant enough to require a PSD increment analysis. The determination of the air quality significance level is a screening tool to determine if and where more analysis is warranted. The results of the significant impact area modeling are as follows:

Pollutant	Averaging Period	Concentration[a] ($\mu g/m^3$)			Significant Impact Area: Radius of Impact (km)	
		Significance Level		Peak Predicted Value		
		Class II	Class I		Class II	Class I
PM_{10}	24-hour	5	1	9.76	0.5	5.4
	Annual	1	--[b]	1.67	0.3	--
SO_2	3-hour	25	--	29.69	3.1	--
	24-hour	5	1	12.31	8.9	14.8
	Annual	1	--	1.99	8.9	--
NO_x	24-hour	--	1	7.38	--	14.8
	Annual	1	--	1.20	3.1	--
CO	1-hour	2,000	--	59.73	N/A[c]	--
	8-hour	500	--	17.85	N/A	--
	24-hour	--	1	12.31	--	14.8

[a] Predicted and threshold values are high-first-high concentrations.
[b] No significance level is established.
[c] High-first-high modeled values are below significance levels, therefore, the effective SIA is zero.

The results from the table above indicate that all of the Class I SIAs are less than the 46- km distance between the facility and the closest Class I area, the Northern Cheyenne Indian Reservation. Other nearby Class I areas include: Yellowstone National Park, North Absaroka Wilderness, and UL Bend Wilderness Area (all approximately 200 km from the proposed facility site). Therefore, the emissions from the facility are not likely to have a significant impact on the Northern Cheyenne Indian Reservation, or the other Class I areas nearby. In addition, the high-first-high predicted peak concentrations of CO are below the significant impact values for the Class II significance levels. Therefore, by definition, the facility’s emissions of CO will not significantly impact ambient air quality and no further CO ambient standard or PSD increment analysis is necessary.

The NAAQS/Montana Ambient Air Quality Standards (MAAQS) analysis demonstrated that the emissions from this facility would be below the ambient air quality standards. A comparison of the modeled impacts from RMP with the MAAQS is shown in the following table. The RMP impacts were compared with the MAAQS because the MAAQS are the same or more stringent than the NAAQS for the above pollutants and averaging times. As displayed in the following table, the impacts from the RMP project on the air quality in comparison to the ambient air quality standards is minor. The ambient air quality standards are designed to protect public health with an adequate margin of safety (primary standard) and promote public welfare (secondary standard).

Pollutant	Averaging	Modeled Value	Background Value ($\mu g/m^3$)	Ambient Value (includes modeled	NAAQS/ MAAQS[a]

	Period	($\mu g/m^3$)		and background values) ($\mu g/m^3$)	($\mu g/m^3$)
PM_{10}	24-hr	7.63	30	37.63	150
	Annual	1.67	8	9.67	50
NOx	1-hr	35.77	75	110.77	564
	Annual	1.20	6	7.20	94
SO_2	1-hr	37.79	35	72.79	1,800
	3-hr	23.71	26	49.71	1,300
	24-hr	11.16	11	22.16	365
	Annual	1.20	3	3.20	52

[a] Only the most restrictive standard is shown in the table.

In addition to the ambient air quality analysis, a PM_{10}, SO_2, and NO_x Class II and Class I PSD Increment Analysis was performed, as the submittal of the RMP application triggers the minor source baseline date for those pollutants. As a major source, RMP's emissions would consume increment. The following table compares the model-predicted concentrations with the corresponding PSD increments. As shown below, no increments are exceeded.

Pollutant	Averaging Period	Concentration [a] ($\mu g/m^3$)			
		Class I increment	Peak Modeled Value	Class II increment	Peak Modeled Value
PM_{10}	24-hour	8	0.05	30	7.63
	Annual	4	0.005	17	1.67
SO_2	3-hour	25	1.99	512	23.71
	24-hour	5	0.38	91	11.16
	Annual	2	0.04	20	1.99
NO_x	Annual	2.5	0.02	25	1.20

[a] Predicted and standard values are high-second-high except for all annual averaging periods. Values for all annual averaging periods are high-first-high.

Based on the "worst case" emissions from the facility, the facility would comply with the NAAQS, the MAAQS, and the Class I and II increments for PM_{10}, SO_2, and NO_x. Not only would the facility comply with the previously described standards at worst case conditions, but also the facility would not operate in "worst case" mode for very long periods of time. In addition, Air Quality Related Value (AQRV), Class I visibility impact, and lake acidification analyses were performed using ISC3 or VISCREEN. All modeling was also forwarded to the U.S. Environmental Protection Agency (EPA), the National Park Service (NPS), the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service (USFWS), the Crow Indian Reservation, and the Northern Cheyenne Indian Reservation for review.

In addition to the modeling analyses, a BACT analysis (see Section III of the permit analysis) was performed as part of the permit action, that resulted in specific permit conditions on applicable equipment. The results of that BACT analysis were factored into the modeling analysis. Another condition in the permit would limit the opacity (visible emissions) from the facility and general plant property.

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this permitting action. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air and Waste Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Rocky Mountain Power, Inc.
Hardin Generator Project
P.O. Box 5650
Bismarck, ND 58506-5650

Air Quality Permit Number: #3185-00

Preliminary Determination Issued: May 2, 2002
Department Decision Issued: May 24, 2002
Permit Final: June 11, 2002

1. *Legal Description of Site*: The Rocky Mountain Power, Inc. (RMP) electrical power generating facility would be located approximately 1.2 miles northeast of Hardin, Montana. The legal description of the site would be the Southwest ¼ of Section 12, Township 1 South, Range 33 East, in Big Horn County, Montana. RMP owns and would use approximately 30 acres for the proposed facility.

2. *Description of Project*: RMP has applied for an air quality preconstruction permit for the construction and operation of a nominal 113-megawatt (MW) coal-fired steam-electric generating station. The facility would consist of a pulverized coal-fired (PC-fired) boiler and a steam turbine, which would drive an electric generator. RMP would consume 8.5-MW of that power (in parasitic load). In addition to electrical generating facility, the project would include construction of a transformer (located east of the boiler building) and a ½-mile long transmission line from the facility to the existing Montana Power Company lines. Eight transmission towers would be constructed for this project, four on RMP property and four northwest of the property. The first would be 500 feet from the transformer, and subsequent transmission towers would be 600 feet apart after that. The transformer would be located on the east side of the boiler building, with the transmission line heading out to the northwest corner of the site, then toward the substation. The towers would be "H-frame" structures, made of wood poles. Each structure would consist of two 60-foot wooden poles, 12 feet apart with a crossmember. Each pole would be 16 inches in diameter. RMP anticipates that the boiler would combust coal owned by the Tribe of Crow Indians from the Absaloka Mine. The facility would consume approximately 656,500 tons per year of coal. The facility site would include a coal storage building (approximately 275 feet long and 125 feet wide), boiler building (approximately 210 feet long by 175 feet wide), and a cooling tower (approximately 350 feet long by 50 feet wide). The stacks from the facility would include: the boiler stack (350 feet tall), 8 cooling tower stacks (45 feet tall each), a dust collector (D1) stack (150 feet tall), a bin vent (D2) stack (35 feet tall), and a bin vent (D3) stack (35 feet tall). The plant is currently within the energy portfolio provided to the Montana Public Service Commission by Montana Power Company (that part of Montana Power Company is now NorthWestern Energy).

3. *Objectives of Project*: The objective of the project would be for RMP to establish a nominal 113-MW coal-fired steam-electric generating station to generate marketable electricity.

4. *Alternatives Considered*: In addition to the proposed action, the Department of Environmental Quality (Department) also considered the "no action" alternative. Under the "no action" alternative, the Department would deny the issuance of the air quality preconstruction permit to the proposed facility and none of the impacts described in this EA would occur. Therefore, no further analysis of the "no action" alternative is necessary.
5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a Best

Available Control Technology (BACT) analysis, would be included in Permit #3185-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions would be reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and would not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no action" alternative was discussed previously.

Potential Physical and Biological Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Terrestrial and Aquatic Life and Habitats			✓			yes
B.	Water Quality, Quantity, and Distribution			✓			yes
C.	Geology and Soil Quality, Stability, and Moisture			✓			yes
D.	Vegetation Cover, Quantity, and Quality			✓			yes
E.	Aesthetics		✓				yes
F.	Air Quality		✓				yes
G.	Unique Endangered, Fragile, or Limited Environmental Resource		✓				yes
H.	Demands on Environmental Resource of Water, Air, and Energy		✓				yes
I.	Historical and Archaeological Sites			✓			yes
J.	Cumulative and Secondary Impacts			✓			yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Overall, the impacts from this project to terrestrial and aquatic life and habitats would be minor because of the relatively small portion of land that would be disturbed and the minor impact to the surrounding area from the air emissions (considering the air dispersion characteristics). Terrestrials (such as deer, antelope, rodents) would use the general area of the facility. The area around the facility would be fenced to limit access to the facility. The fencing likely would not restrict access by all animals that frequent the area, but it may discourage some animals from entering the facility property. The surrounding area is currently used for industrial purposes and will remain an industrial area. Surrounding that industrial zone is some agricultural activity as well as single-family dwellings. The other industrial sources, such as the abandoned Holly Sugar processing facility and a Cenex bulk storage facility (directly to the south and north, respectively, of the proposed RMP facility) are located within a few hundred feet of the facility boundary.

Aquatic life and habitats would realize a minor impact from the proposed facility because RMP would be withdrawing water from the Bighorn River for its cooling tower. However, this water withdrawal would have little impact on the overall river flow and habitat, as discussed in Section 7.B of this EA. Wastewater would be evaporated onsite, or disposed of in the Hardin municipal wastewater treatment plant and the resulting air emissions to any water body from the facility would be minor.
The modeling analysis (see section 7.F of this EA) of the air emissions from this facility indicates

that the impacts from the RMP emissions on land or surface water would be moderate and would consume only a small portion of the ambient air quality standards. The moderate air impact would probably correspond to a small amount of deposition because of the type of emissions involved and the dispersion characteristics in the area (wind speed, wind direction, atmospheric stability, stack temperature, etc.).

The construction of the transformer and the transmission lines connecting the RMP facility to existing Montana Power Company lines would result in very little impact on the terrestrial and aquatic life and habitats because the activities would result in minimal disturbance to the habitat area (land/water) and the disturbances would be temporary in those areas. The transformer would be located east of the boiler building. As each transmission tower (there would be 8 towers total) would only occupy two areas 16 inches in diameter, little habitat or terrestrial life would be affected. In addition, the land where the transmission lines would be constructed has been previously disturbed either by industrial activity (on the Holly Sugar site) or agricultural tilling. The transmission line construction would require the use of motor vehicles, but again, the impacts would be minor and of a short time duration. Any noise associated with the operation of the transmission lines may have a minor effect on terrestrials.

B. Water Quality, Quantity, and Distribution

The proposed facility would result in minor impacts to water quality, quantity, and distribution in the area because little or no impacts to the surrounding surface area would result from the air emissions, the facility would use water from the Bighorn River to operate the cooling tower, and the facility would use the City of Hardin for other water demands and sewage discharge. Discharge from the cooling tower would either be disposed of in the Hardin municipal wastewater treatment plant or evaporated onsite.

As described in Section 7.F of this EA, the maximum impacts from the air emissions from this facility would be moderate. However, based on the dispersion characteristics in the area in combination with the level of air emissions, the corresponding deposition of the air pollutants in the area would be minor. The modeled emissions from the proposed facility show compliance with the National Ambient Air Quality Standards (NAAQS) and Montana Ambient Air Quality Standards (MAAQS), both primary and secondary standards. The secondary standards are applicable to these impacts, as they protect public welfare, including protection against damage to water resources.

The estimated water requirements for the facility (specifically the cooling tower) would be 1,300 gallons per minute (gpm), which would be obtained from existing water rights on the Bighorn River. There would be no direct discharge to the waters of the State of Montana from the operation of the cooling tower. Discharge from the cooling tower would be less than 30 gpm, and would either be disposed of in the Hardin wastewater municipal treatment plant or evaporated onsite. As mentioned above, the water drawn from the Bighorn River would be approximately 1,300 gpm, which translates to less than 3 cubic feet per second (cfs). The historic mean from January 1, 1980, through September 30, 2000, for the Bighorn River is 3623 cfs, with the minimum flow for that part of the Bighorn at 1020 cfs. The water requirements of RMP would be approximately 0.08% of the historic mean flow, and 0.3% of the minimum. Therefore the effect of the proposed water withdrawal and discharge/evaporation would be minor.

The construction of the transformer and transmission lines connecting the RMP facility to existing Montana Power Company lines would result in very little impact on water quality, quantity, and distribution because the activities would result in minimal disturbance to ground water and no disturbance to the Bighorn River. Any impacts to ground water from construction would come from storm water buildup and subsequent discharge (the discharge would be a Department permitted activity). Furthermore, the disturbances would be temporary in those areas. In addition, the land where the transmission lines would be constructed has been previously disturbed either by industrial activity (on the Holly Sugar site) or agricultural tilling.

C. Geology and Soil Quality, Stability, and Moisture

The impacts to the geology and soil quality, stability, and moisture from this facility would be minor because the project would impact a relatively small portion of land that has been previously used for industrial activity and the amount of resulting deposition of the air emissions would be small. Approximately 30 acres or less would be disturbed for the physical construction of the power plant. Soil stability in the immediate vicinity of the proposed facility would likely be impacted by the new footings and foundations required for the facility. The major construction required for the facility would be three buildings: one to house the boiler (approximately 210 feet long by 175 feet wide), one for coal storage (approximately 275 feet long and 125 feet wide), and one to house the cooling tower (approximately 350 feet long by 50 feet wide). In addition, a "switchyard," 100 feet long by 100 feet wide, would be constructed to house the transformer and associated equipment. The switchyard would be graveled to mitigate unwanted dust, vegetation, and erosion. Within the graveled area would be several concrete pads of various sizes, on which to hold pieces of equipment. The transformer platform would have a concrete curb, which would contain any material that might be released in the event of a rupture. The facility would not be discharging any material directly to the soil of the immediate area. Some of the air emissions from the facility may deposit on local soils, but that deposition would result in only a minor impact to local areas because of the air dispersion characteristics of the area (See Section 7.F of this EA).

The construction of the transformer and transmission lines connecting the RMP facility to existing Montana Power Company lines would result in very little impact on the geology and soil quality, stability, and moisture because the activities would result in minimal disturbance to land and the disturbances would be temporary in those areas. In addition, the land where both the transformer and the transmission lines would be constructed has been previously disturbed either by industrial activity (on the Holly Sugar site) or agricultural tilling. The transmission line construction would require the use of motor vehicles, but again, the impacts would be minor and of a short time duration.

D. Vegetation Cover, Quantity, and Quality

The proposed project would result in minor impacts on the vegetative cover, quantity, and quality in the immediate area because only a small amount of property would be disturbed and the resulting deposition from air emissions would be relatively small. Approximately 30 acres is planned on being disturbed for the facility and its perimeter.

As described in Section 7.F of this EA, the modeled air impacts from the air emissions from this facility are moderate. As described in that section, based on the air dispersion characteristics in the area, the corresponding deposition of the air pollutants on the surrounding vegetation would be minor. Modeling for the proposed facility shows compliance with the NAAQS and MAAQS, both primary and secondary standards. The secondary standards are applicable to these impacts, as they protect public welfare, including protection against damage to vegetation.

The construction of the transformer and transmission lines connecting the RMP facility to existing Montana Power Company lines would result in very little impact on the vegetation cover, quantity, and quality because the activities would result in minimal disturbance to land/vegetation and the disturbances would be temporary in those areas. In addition, the land where both the transformer and the transmission lines would be constructed has been previously disturbed either by industrial activity (on the Holly Sugar site) or agricultural tilling. As each transmission tower would only occupy two areas 16 inches in diameter, little vegetation would be affected. The transmission line construction would require the use of motor vehicles, but again, the impacts would be minor and of a short time duration. The use of the area surrounding the RMP property would remain relatively unchanged.

E. Aesthetics

The impacts to the aesthetics of the area from this project would be moderate because other industrial and commercial facilities/structures are located in the nearby area, the facility would be barely visible from gathering places along the river (the steam plume on cold days would be fairly large compared to other common sources in the area and would be visible from Hardin and Montana Highway 47), and the noise from the facility at the property fenceline would be comparable to a constant electric shaver (based on sound levels measured at Montana Dakota Utilities' (MDU) Heskett Station north of Mandan, North Dakota). Furthermore, coal-handling operations would increase the level of noise, although not on a constant level. The most visible part of the RMP facility would probably be the 350-feet tall boiler stack.

The RMP facility (including the transmission lines) would be visible from Montana Highway 47 (approximately ½ mile to the west from the planned facility location) and from the north side of Hardin (approximately 1 mile south), and possibly from the Bighorn River (½ mile from the closest property boundary) and the Arapooish fishing/recreational area (approximately ¾ mile southeast). However, as the Holly Sugar facility stack is still visible near this site, the cumulative effect would be minor. In addition, steam plumes might be visible from the facility from Montana Highway 47 and Hardin on those days with temperatures low enough to cause steam plumes to form. The impact on aesthetics from the plume on those days would be moderate. Although there are many other steam plumes visible from cars, residences, wood stoves, etc. in the area on those days, the RMP steam plume would be larger and more visible than other common sources in the area. RMP's steam plume would resemble the steam plume at the Yellowstone Energy Limited Partnership (YELP) cogeneration facility (petroleum coke-fired) or the Montana Power Corette (Corette) plant (coal-fired), both in Billings, Montana. However, the steam plume from RMP would be a "wet" plume (due to the wet scrubber) and the YELP and Corette plumes are "dry." With respect to particulate emissions, particulate control (specifically a multiclone and a wet scrubber) would be required in Permit #3185-00 to minimize emissions and opacity (visible emissions) would be limited to less than 20%.

The aesthetics of the area would not change significantly, as the proposed facility would locate on a portion of the old Holly Sugar processing plant site. The land at the proposed site is not currently in use, although the buildings and the old stack from the Holly Sugar processing plant remain on site, and will not be removed. In addition, a Cenex bulk storage facility is located directly to the north of the proposed RMP site.

The facility would result in additional noise for the area. The noise impacts from this facility on the surrounding area would be moderate because the noise from the facility is relatively quiet when compared to other common sources and the distance to the nearest residence is approximately ¼ - ½ mile away, but it is a constant noise. In addition, noise from coal handling would also be heard near the facility. Noise levels from the proposed facility have been estimated based on measured data from other similar facilities. The typical values ranged from 60 to 70 dBA (decibels) between 50 and 800 feet from the main coal-fired power plant stack. Sound level measurements taken at MDU's Heskett Station north of Mandan, North Dakota (2 units, one 20-MW and one 80-MW) indicate that sound levels at 1 mile would be approximately 49.8 dBA, or comparable to the sound of rainfall or a refrigerator humming. Closer to the facility (at the fenceline, in this case) is estimated at approximately 60 dBA. Houses within ¼ to 1 mile away would experience between 40 and 60 dBA (corresponding to the noise of a refrigerator or electric shaver). Trucks would be driving on the roads to the RMP facility at approximately 3 trucks every 2 hours, 24 hours per day. Coal handling would take place inside facility buildings, but noise from the trucks and/or handling would probably be apparent to nearby residents. The Holly Sugar facility buildings, by providing a noise "buffer", would further minimize the effect of the noise from the facility on the nearby residents to the south and southeast.

The area would also receive increased vehicle use as a result of the proposed project; however, the Department does not believe that the amount of vehicle trips in the area would increase substantially over the existing traffic in the area, as the facility would be located very near to an existing truck route (Montana Highway 47 and Interstate Highway 90). Vehicles would likely use the existing roads (specifically the truck route) in the area en route to the roads established as part of the actual facility. Although the increased truck traffic impact on Montana Highway 47 and Interstate Highway 90 would be minor, the increased traffic would have a moderate effect on the roads leading to the facility itself. Visible emissions from access roads would be limited to 20% opacity. Although not necessarily required as a part of this air quality permit, RMP has stated that they would pave the facility access roads to minimize dust and disturbance.

There would be a minor increase in odors with the addition of this facility to the area due to the coal combustion process and coal handling in general. However, industrial odors (from the existing Cenex bulk station, some agricultural operations, and the old Holly Sugar processing facility, for example) are not new to the area, and the odors associated with coal combustion are generally much less offensive than odors associated with sugar processing. In addition, sulfur dioxide (SO_2) pollution control required by Permit #3185-00 (specifically, a wet scrubber) would reduce the amount of SO_2 released into the atmosphere, and therefore, reduce the odor associated with SO_2 emissions. Therefore, only a minor impact from odor would be expected.

F. Air Quality

The proposed RMP facility would result in moderate air quality impacts because of the amount of air pollutants emitted and the good dispersion characteristics of the stack and the area. Emissions of nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM), particulate matter less than 10 microns in diameter (PM_{10}), volatile organic compounds (VOC), SO_2, and lead (Pb) would result from the proposed project, with NO_x, CO, PM_{10}, and SO_2 above the 100 ton per year PSD major source threshold. Air quality dispersion modeling (which factors in such parameters as wind speed, wind direction, atmospheric stability, stack temperature, stack emissions, etc.) was conducted for the facility by Bison Engineering, Inc. The modeling analyses were conducted using 7 complete years (all four seasons in 1984 and 1986-1991) of National Weather Service ambient air quality surface data from Billings and upper air data from Great Falls. The modeling inputs were based on the "worst case" emissions from the facility. Approximately 5200 receptors were used to identify the potential impacts from the proposed project. The receptors extended 10,000 meters (approximately 6 miles) in all directions. The receptor elevations were automatically calculated from Digital Elevation Model (DEM) files. The ambient analysis did not include any other sources than RMP because no major stationary sources exist within any of the significant impact areas (SIAs) or within 50 kilometers (km) beyond the SIAs. The air dispersion modeling analysis was independently reviewed by the Department.

RMP submitted a modeling analysis of the emissions from the facility in comparison to the air quality significance levels. The air quality significance level is the threshold for determining whether or not the impacts from a source are significant enough to require a PSD increment analysis. The determination of the air quality significance level is a screening tool to determine if and where more analysis is warranted. The results of the significant impact area modeling are as follows:

Pollutant	Averaging Period	Concentration[a] ($\mu g/m^3$)		Significant Impact Area: Radius of Impact (km)
		Significance Level	Peak	

		Class II	Class I	Predicted Value	Class II	Class I
PM_{10}	24-hour	5	1	9.76	0.5	5.4
	Annual	1	--[b]	1.67	0.3	--
SO_2	3-hour	25	--	29.69	3.1	--
	24-hour	5	1	12.31	8.9	14.8
	Annual	1	--	1.99	8.9	--
NO_x	24-hour	--	1	7.38	--	14.8
	Annual	1	--	1.20	3.1	--
CO	1-hour	2,000	--	59.73	N/A[c]	--
	8-hour	500	--	17.85	N/A	--
	24-hour	--	1	12.31	--	14.8

[a] Predicted and threshold values are high-first-high concentrations.
[b] No significance level is established.
[c] High-first-high modeled values are below significance levels, therefore, the effective SIA is zero.

The results from the table above indicate that all of the Class I SIAs are less than the 46-km distance between the facility and the closest Class I area, the Northern Cheyenne Indian Reservation. Other nearby Class I areas include: Yellowstone National Park, North Absaroka Wilderness, and UL Bend Wilderness Area (all approximately 200 km from the proposed facility site). Therefore, the emissions from the facility are not likely to have a significant impact on the Northern Cheyenne Indian Reservation, or the other Class I areas nearby. In addition, the high-first-high predicted peak concentrations of CO are below the significant impact values for Class II significance levels. Therefore, by definition, the facility's emissions of CO will not significantly impact ambient air quality and no further CO ambient standard or PSD increment analysis is necessary.

The NAAQS/ MAAQS analysis demonstrated that the emissions from this facility would be below the ambient air quality standards. A comparison of the modeled impacts from RMP with the MAAQS is shown in the following table. The RMP impacts were compared with the MAAQS because the MAAQS are the same or more stringent than the NAAQS for the previously mentioned pollutants and averaging times. As displayed in the following table, the impacts from the RMP project on the air quality in comparison to the ambient air quality standards is minor. The ambient air quality standards are designed to protect public health with an adequate margin of safety (primary standard) and to promote public welfare (secondary standard).

Pollutant	Averaging Period	Modeled Value ($\mu g/m^3$)	Background Value ($\mu g/m^3$)	Ambient Value (includes modeled and background values) ($\mu g/m^3$)	NAAQS/ MAAQS[a] ($\mu g/m^3$)
PM_{10}	24-hr	7.63	30	37.63	150
	Annual	1.67	8	9.67	50
NOx	1-hr	35.77	75	110.77	564
	Annual	1.20	6	7.20	94
SO_2	1-hr	37.79	35	72.79	1,800
	3-hr	23.71	26	49.71	1,300
	24-hr	11.16	11	22.16	365
	Annual	1.20	3	3.20	52

[a] Only the most restrictive standard is shown in the table.

In addition to the ambient air quality analysis, a PM_{10}, SO_2, and NO_x Class II and Class I PSD Increment Analysis was performed, as the submittal of the RMP application triggers the minor source baseline date for those pollutants. As a major source, RMP's emissions would consume increment. The following table compares the model-predicted concentrations with the corresponding PSD increments. As shown below, no increments would be exceeded.

Pollutant	Averaging Period	Concentration [a] ($\mu g/m^3$)			
		Class I increment	Peak Modeled Value	Class II increment	Peak Modeled Value
PM_{10}	24-hour	8	0.05	30	7.63
	Annual	4	0.005	17	1.67
SO_2	3-hour	25	1.99	512	23.71
	24-hour	5	0.38	91	11.16
	Annual	2	0.04	20	1.99
NO_x	Annual	2.5	0.02	25	1.20

[a] Predicted and standard values are high-second-high except for all annual averaging periods. Values for all annual averaging periods are high-first-high.

Based on the "worst case" emissions from the facility, the facility would comply with the NAAQS, the MAAQS, and the Class I and II increments for PM_{10}, SO_2, and NO_x. Not only would the facility comply with the previously described standards at worst case conditions, but also the facility would not operate in "worst case" mode for very long periods of time. In addition, Air Quality Related Value (AQRV), Class I visibility impact, and lake acidification analyses were performed using ISC3 and VISCREEN. All modeling was also forwarded to the U.S. Environmental Protection Agency (EPA), the National Park Service (NPS), the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service (USFWS), the Crow Indian Reservation, and the Northern Cheyenne Indian Reservation for review.

In addition to the modeling analyses, a BACT analysis (see Section III of the permit analysis for Permit #3185-00) was performed as part of the permit action that resulted in specific permit conditions on applicable equipment. The results of that BACT analysis were factored into the modeling analysis. Another condition in the permit would limit the opacity (visible emissions) from the facility and general plant property.

The operation of the RMP facility would also result in emissions of Hazardous Air Pollutants (HAPs). A major facility for HAPs is defined as a stationary source that has the potential to emit more than 10 tons per year of any individual HAP or 25 tons per year of all HAPs combined. The highest individual emission rate of a HAP from this project would be 3.9 tons per year (hydrochloric acid), and the combined emission rate of all HAPs from this project would be 8.43 tons per year. Not only is this source not considered a major source for HAPs, but any impact from HAPs would be minor because the emissions of the HAPs would be dispersed by the wind speed, wind direction, atmospheric stability, stack temperature, and other dispersion parameters in the area. The exposure to a person from the HAPs emissions from this facility would be less than the exposure level that occurs while fueling a vehicle. The public's exposure to HAPs while fueling a vehicle would be much higher than that from the emissions from this facility because the emissions from RMP would be emitted from a 350-foot tall stack at approximately 325°F. Due to the wind speed, wind direction, atmospheric stability, stack temperature, and other parameters, the emissions from the RMP facility would greatly disperse (dilute) before creating impacts to the public. There are no ambient air quality standards for HAPs.

In addition to the previously mentioned regulated pollutants, operation of the RMP facility would also result in greenhouse gas emissions. Greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and several other compounds that contain chloroflorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Three of the direct greenhouse gases are formed by the combustion of fossil fuels, including CO_2, CH_4, and N_2O. Several other gases, referred to as indirect gases, do not have a direct radiative forcing effect, but do influence the formation and destruction of ozone, which does have a radiation-absorbing effect. The indirect gases include the mixture of nitric oxides and NO_X, CO, and non-methane VOC (NMVOC) all of which are emitted from the combustion of fossil fuels.

The primary greenhouse gas emission from the energy sector is CO_2. Most carbon contained in fossil fuels is emitted as CO_2 during the fuel combustion process. The remainder is emitted as CO, CH_4, or NMVOC, all of which oxidize to CO_2 in the atmosphere within a time range of a few days to nearly 11 years (the process of oxidizing CO to CO_2 in the atmosphere takes an average of 2 months). The following table lists the greenhouse gas emissions for the RMP facility.

Gas	Emission (short ton/yr)	Emissions (metric ton/yr)	100-Year Global Warming Potential	Carbon Equivalent (metric tons)
CO_2	1,199,556	1,088,237	1	296,792
CH_4	13.3	12	21	69
N_2O	18.6	17	310	1,427
CO	856.9	78	Not Established	Not Applicable
NOx	514.0	466	Not Established	Not Applicable
SO_2	856.9	622	Not Established	Not Applicable
VOC	19.7	9	Not Established	Not Applicable

The Intergovernmental Panel on Climate Change (IPCC) developed the methodology by which the CO_2, CH_4, and N_2O emissions above were quantified. The methodology used in this analysis is referred to as the Tier 1 methods. The Tier 1 methods provide simple calculations based on the quantities of fuel consumed and average emission factors. The CO_2 emissions were estimated based on the amount of fuel fired and the carbon content of the fuel. The CH_4 and N_2O emissions were based on several studies published between 1990 and 1995. The Global Warming Potential (GWP) factor shown in the table above was also developed by the IPCC. The GWP is a measure of the relative radiative forcing impacts of various greenhouse gases, specifically the ratio of cumulative global warming (radiative forcing, including both direct and indirect effects) from one unit mass of a greenhouse gas to that of one unit mass of carbon dioxide over a period of time. The lifetime of a gas in the atmosphere is the primary factor in determining the overall effect of the gas. CO_2 has an atmospheric lifetime of about 120 years. It continues to contribute to radiative forcing with decreasing impact for decades following release into the atmosphere. Other species, like some CFCs, have very long lifetimes and may contribute to global warming for centuries. As shown above, CH_4 contributes 21 times the Global Warming Potential as CO_2 over 100 years. In comparison, CFC-13 (not shown on the table above) has an atmospheric lifetime of 400 years and contributes 6600 times the Global Warming Potential as CO_2 over 100 years. The forcing impact is measured relative to a reference gas, CO_2, and is expressed in terms of metric tons of carbon equivalent. GWP factors have not been established for the indirect greenhouse gases because there is no agreed-upon method to estimate the contributions of these gases on radiative forcing. RMP is currently evaluating avenues for carbon sequestration or CO_2 offsets outside of this permitting action.

Any impact from CO_2 (the primary greenhouse gas emission from the energy sector) would be extremely minor when compared to the CO_2 emissions from other, similar industrial sources or area sources (for example, the cumulative impact of motor vehicles) in the state and other natural sources of CO_2. In addition, there are no ambient air quality standards for CO_2. CO_2, specifically, is not a regulated pollutant under the Federal or Montana Clean Air Acts.

G. Unique, Endangered, Fragile, or Limited Environmental Resources

To identify any species of special concern in the immediate area of the proposed project, the Department contacted the Montana Natural Heritage Program of the Natural Resource Information System (NRIS). The Natural Heritage Program files identified four species of special concern in the 1-mile buffer area surrounding the section, township, and range of the proposed facility. The four animal species identified were the *haliaeetus leucocephalus* (bald eagle), *heterodon nasicus* (western hognose snake), *sorex merriami* (merriam's shrew), and *sorex preblei* (preble's shrew). A bald eagle nest is estimated to be located approximately 1 mile north-northeast of the property boundary for the proposed RMP site. A western hognose snake was sighted approximately 1.5 miles southwest of the proposed site. The sightings of merriam's shrew and preble's shrew are historic sightings (both dated 1884) located approximately 2 miles southeast of the proposed site. None of the species identified were located within the same section, township, and range of the proposed RMP site.

As the facility site would be fenced, most terrestrials would stay away from the facility itself. In addition, the proposed site would probably not be a habitat area for animals as it had been an industrial site for some time prior to being purchased by RMP. Although, as described in Section 7.B. of this EA, the impact on air quality would be moderate, the facility would not violate any ambient standards. The proposed facility would be required to operate in compliance with NAAQS and MAAQS, both primary and secondary standards. The secondary standards are applicable in this case, as they protect public welfare, including protection against damage to animal species.

To determine the impact on the bald eagle population, the Department consulted the U.S. Department of Interior, Bureau of Reclamation Montana Bald Eagle Management Plan (MBEMP). With the identified nest being approximately 1 mile away from the RMP property boundary, the RMP site would fall into a MBEMP "Zone III" Classification, representing home range for the bald eagles. Zone III is classified as the area from 0.5 mile to 2.5 miles in radius from the nest site (Zone II from 0.25 to 0.5 miles, Zone I from 0 to 0.25 miles). Zone III represents most of the home range used by eagles during nesting season, usually including all suitable foraging habitat within 2.5 miles of all nest sites in the breeding area that have been active within 5 years. The objectives in Zone III areas include maintaining suitability of foraging habitat, minimizing disturbance within key areas, minimizing hazards, and maintaining the integrity of the breeding area. The nest is located in a group of cottonwood trees located in the marshy area next to the Bighorn River. That area would remain unchanged by the facility operation, except for a possible moderate impact by air pollutants, as described in Section 7.F of this EA. The nature of the RMP property would not change significantly, as it has been previously used as industrial property, and would continue to be used as such. In addition, the Cenex bulk storage facility is located between the sighted bald eagle nest and the RMP facility. As discussed in Section 7.E of this EA, the noise associated with the project at 1 mile from the stack would be comparable to the sound of rainfall or a refrigerator humming. The nest atmosphere would probably not be disturbed by that level of noise, based on current levels of activity near the nest site. The new transmission lines (a total of 8 structures) could create issues for the bald eagles as far as possible exposure to an electrocution hazard. Electrocution is possible on transmission lines/power poles when eagles take off and/or land on the lines or poles if their wings bridge two wires. Transmission and power lines already exist in the area directly south and east of the identified bald eagle nest between the proposed RMP site and the nest. However, increasing the number of transmission lines would increase the risk of exposure to electrocution.

RMP would be responsible for compliance with any applicable statutes and regulations, including the Bald Eagle Protection Act, the Migratory Bird Treaty Act, and the Endangered Species Act.

However, due to the possible disturbances from the RMP facility, including truck traffic, the operation of the PC-fired boiler (specifically the noise involved), and an electrocution hazard from the new transmission lines, the Department has determined that the proposed facility would have moderate effects on certain sensitive, unique, endangered, or threatened species, specifically the bald eagle.

The proposed project would have minor impacts on limited, non-renewable resources because the amount of coal required by the facility would be relatively small in comparison to the coal produced in Montana and the nation. According to a U.S. Department of Energy – Energy Information Administration report, Montana produced 39.1 million short tons of coal, and the U.S. produced 1121.3 million short tons of coal in 2001. The facility would require approximately 656,500 short tons of coal per year (approximately 1.7% of coal produced in Montana and 0.059% of coal produced in the U.S. in 2001), and the coal would be obtained from the Absaloka Mine, located approximately 30 miles east of Hardin.

H. Demands on Environmental Resource of Water, Air, and Energy

As described in Section 7.B of this EA, impacts to the water resource would be minor because the demands for water (from the Bighorn River) would be insignificant compared with historical flow and the resulting amount of wastewater would be small. Furthermore, wastewater would either be disposed of in the Hardin municipal wastewater plant or evaporated onsite.

As described in Section 7.F of this EA, the impact on the air resource in the area of the facility would be moderate because of the amount and the type of air pollutants emitted and the good dispersion characteristics of the stack and the area. Ambient air modeling for NO_x, CO, PM, PM_{10}, and SO_2 was conducted for the facility at "worst case" conditions and demonstrates that the emissions from the proposed facility would not exceed any ambient air quality standard. As a result of the ambient air quality analysis presented in Section 7.F of the EA, Permit #3185-00 would contain conditions limiting the emissions from the facility.

The impacts to the energy resource from this facility would be minor because the facility would consume relatively small amounts of coal (approximately 656,500 tons per year) in comparison to the coal consumed nationally, and the facility would produce relatively small amounts of electrical power (approximately 113 MW, with approximately 8.5 MW being used by the facility itself) in comparison to the electrical power that is produced nationally. According to a Department of Energy – Energy Information Administration report on the Electric Power Industry Summary Statistics for 1999, the U.S. electric power industry had 793,957 MW of generating capability for that year. In comparison, RMP is proposing to bring approximately 113 MW online, or 0.014% of the national generating capability. Furthermore, in comparison to other recently permitted similar sources in the nation, the coal consumption and electrical production are again, minor.

The transformer and transmission line construction portion of this project would result in very little air quality impact because no major air emission activities would be required. The transformer/transmission line construction may require the use of motor vehicles, but the impacts would be minor and of a short time duration. Similarly, minor fugitive dust emissions would result from the transformer/transmission line construction as well, but the emissions would be temporary.

I. Historical and Archaeological Sites

The impacts on historical and archaeological sites would be minor because the site location contains no visible standing structures, the facility would physically impact a small amount of property (approximately 30 acres), the facility would locate within an area that has been previously used for industrial purposes, and the site location is in an area that would likely not have been used for any significant historical or archaeological activity.
The area of the actual construction contains no visible standing structures and has been

thoroughly disturbed by previous industrial activities (the proposed plant site was previously used as a support facility for Holly Sugar Corporation, specifically as a spent lime filtercake lagoon). Directly to the south of the proposed location are the buildings associated with Holly Sugar Corporation, which will remain in place. Directly to the north of the proposed location is a Cenex bulk storage facility, which will also remain in place. Due to the previous use of the site, if any historical structures once existed on the property, they would probably have been destroyed prior to or during the construction of the Holly Sugar facility.

The physical location of the site also indicates that it was not likely a location for significant historical or archaeological activity. The site location is located in the plains next to the river marsh area of the Bighorn River. The nearest portion of the Bighorn River to the site location is approximately 0.5 miles away.

The Department contacted the Montana Historical Society – State Historic Preservation Office (SHPO) in an effort to identify any historical, archaeological, or paleontological sites or findings near the proposed project. SHPO's records indicate that there are currently no previously recorded cultural properties within the project site. Because of the fact that industrial activities and land disturbances have occurred in the area, SHPO commented that the likelihood of finding undiscovered or unrecorded historical properties is practically nil. SHPO further commented "a recommendation for a cultural resource inventory is unwarranted at this time."

J. Cumulative and Secondary Impacts

Overall, the cumulative impacts from this project on the physical and biological aspects of the human environment would be minor. Although the overall air impact from RMP by itself would be moderate, no other significant industrial sources exist in the area. Any area sources that contribute to "background" levels of air emissions were included in the PSD increment modeling, mentioned in Section 7.F. of this EA. As previously mentioned, the modeling analysis indicated that the emissions from the RMP facility would not violate any Class I or Class II PSD increment or the ambient standards and would comply with the NAAQS/MAAQS.

Secondary impacts from this project on the physical and biological aspects of the human environment would also be minor. Secondary impacts include the emissions from coal hauling trucks and increased traffic from construction and regular operation employees. The coal hauling trucks have minimal emissions (0.05 tons per year VOCs, 0.17 tons per year CO, 0.08 tons per year NO_X annually for all estimated truck trips). Due to the temporary nature of the construction operation, the effect of employees from that would be minor. Only 35 full-time employees are estimated to join the RMP workforce at the Hardin site. Their impacts on traffic, due to the low number of employees, should also be minor.

8. The following table summarizes the potential social and economic effects of the proposed project on the human environment. The "no action" alternative was discussed previously.

Potential Social and Economic Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Social Structures and Mores				✓		yes
B.	Cultural Uniqueness and Diversity				✓		yes
C.	Local and State Tax Base and Tax Revenue			✓			yes
D.	Agricultural or Industrial Production			✓			yes
E.	Human Health			✓			yes
F.	Access to and Quality of Recreational and Wilderness Activities			✓			yes
G.	Quantity and Distribution of Employment			✓			yes
H.	Distribution of Population			✓			yes
I.	Demands for Government Services			✓			yes
J.	Industrial and Commercial Activity		✓				yes
K.	Locally Adopted Environmental Plans and Goals				✓		yes
L.	Cumulative and Secondary Impacts			✓			yes

SUMMARY OF COMMENTS ON POTENTIAL SOCIAL AND ECONOMIC EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The proposed facility would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the land use proposal would not be out of place given the previous land use of the area (including and surrounding the proposed site), and the fact that the greater surrounding area would remain agricultural and/or associated with the outskirts of the City of Hardin. The addition of the RMP facility would be consistent with the former and current use of the larger area surrounding the facility (the former Holly Sugar processing plant and the current Cenex bulk storage facility).

The construction of the transformer and the transmission lines would have no impact on social structures and mores because the transformer would also be located on the former Holly Sugar processing plant site, and the transmission lines would join other existing transmission lines that connect to an existing substation approximately ½ to ¾ mile north of the facility. Most of the impacts from the construction of the transformer and transmission lines would occur within previously disturbed sites (disturbed either by industrial activity on the Holly Sugar site or by agricultural tilling) and those construction effects would be temporary.

B. Cultural Uniqueness and Diversity

The proposed facility would not cause a change in the cultural uniqueness and diversity of the area because the site was previously used for industrial activity (the Holly Sugar processing plant), and a Cenex bulk storage facility currently operates directly north of the proposed site. Therefore, locating an industrial source (such as the RMP power generating station) in that area

would not be "out of place."
As described in Section 7.F of this EA, the project would not cause or contribute to a violation of ambient air quality standards. Therefore, unique cultures nearby (including the Tribe of Crow Indians and the Northern Cheyenne Tribe) would not be affected by this project. As the Northern Cheyenne Indian Reservation is a PSD Class I area, a Class I increment analysis was performed for that area. Based on that analysis and associated modeling results, the addition of RMP to the area would not create a situation in which any increments would be exceeded. Therefore, RMP would cause no change in the cultural uniqueness and diversity of the area.

C. Local and State Tax Base and Tax Revenue

The facility would have a minor effect on the local and state tax base and tax revenue because it would pay state and local taxes, and would employ numerous people (taxpayers) during construction and approximately 35 full-time employees after completion. An additional 10 jobs for coal hauling truck drivers would also likely be created. The RMP project would be privately funded.

D. Agricultural or Industrial Production

The impacts to agricultural and industrial production in the area from this facility would be minor because the facility would physically impact a small amount of land (approximately 30 acres) that at one time was used for industrial purposes, very little (if any) agricultural land would be disturbed to construct transmission lines, and the resulting deposition from air quality emissions would be small.

The land where the proposed facility would be located is currently not being used. The land is within the property boundaries of the old Holly Sugar processing plant. Therefore, the area is accustomed to industrial use. A very small amount of agricultural land may be used to construct the transmission lines; however, the land could still be used for agricultural purposes, after the addition of the transmission lines.

As described in Section 7.F of the EA, the air quality impacts from this facility would be moderate. However, because of the air dispersion characteristics, the resulting deposition of the pollutants from the RMP project would be minor. In addition, the fact that the facility was modeled to show compliance with the NAAQS (protect public health and promote public welfare) indicates that the impacts from the facility would be minor.

The RMP facility may assist other industrial production because the power to be produced by RMP is currently included in the Montana Power Company (that part of Montana Power Company is now called NorthWestern Energy) energy portfolio that was submitted to the Montana Public Service Commission. If the power produced by RMP was included in an approved portfolio, that power could be used by other industrial sources in Montana.

E. Human Health

As described in Section 7.F of the EA, the impacts from this facility on human health would be minor because the impact from the air emissions would be greatly dispersed before reaching an elevation where humans would be exposed. Also, as described in Section 7.F, the modeled impacts from this facility, taking into account other dispersion characteristics, are well below the MAAQS and the NAAQS. The air quality permit for this facility would incorporate conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

Besides the criteria pollutants, the impacts from all other air pollutants (CO_2 and HAPs) would also be greatly minimized by the dispersion characteristics of the facility and the area (wind speed, wind direction, atmospheric stability, stack temperature, facility emissions, etc.). Impacts from other common activities (such as fueling a vehicle for example) would have a greater impact on human health for HAPs because of the concentrations at the point of exposure. The construction of the transformer and transmission lines would have no impact on human health.

F. Access to and Quality of Recreational and Wilderness Activities

The facility would result in a minor impact on the access to and quality of recreational and wilderness activities because the air emissions from the facility would be required to be in compliance with the NAAQS and MAAQS and would disperse before impacting the recreational areas (see Section 7.F of EA). The recreational activities in the area are approximately ¾ to 1½ miles away. Furthermore, the RMP site is located on land previously used as an industrial site. The land use would not change. The property will continue to be private. No recreational or wilderness activities exist within the RMP property boundaries. The RMP facility would have no impact on the access to and quality of wilderness activities.

Recreational activities exist in the area surrounding the proposed site location. The closest recreational opportunity is the Arapooish fishing access point/recreation area (approximately ¾ mile southeast of the RMP property), and the Bighorn River (approximately ½ mile away from the RMP property at its closest point). Based on the modeling analysis performed for the RMP project (see Section 7.F of the EA) and the distance between and direction from the recreational sites and the RMP project site, the impacts to the previously mentioned recreational opportunities and other recreational opportunities in the area would be minor.

The construction of the transformer and transmission lines would have no impact on recreational and wilderness activities because the areas of disturbance are currently not sites for these type of activities and because most of the impacts would be temporary.

G. Quantity and Distribution of Employment

There would be a minor effect on the employment of the area from this project because it would result in numerous construction-related employment opportunities and approximately 45 full-time positions (including 10 positions associated with truck drivers for coal hauling operations). According to the U.S. Census Bureau, 29.6% of the general population of Big Horn County live below the poverty level. The jobs provided by the RMP project could provide jobs and income to improve the economic status of the County. In addition, the Montana Department of Revenue estimates that manufacturing industries create additional jobs in the community outside of that specific manufacturing business. Power generation facilities (such as RMP) are likely to have the same effect.

A few temporary employment opportunities would result from the installation and construction of the transformer and transmission lines. However, the impacts on quantity and distribution of employment from this portion of the project would be minor because the required work would be temporary.

H. Distribution of Population

The entire project would have a minor effect on the normal population distribution in the area because, excluding the 45 full-time positions that would result from the power plant and coal hauling operations, the remainder of the jobs created from this project would be temporary. Neither the 45 full-time positions nor the numerous temporary construction-related positions would likely affect the distribution of population in the area.

Most employees required for the construction and operation of the power plant would likely be from Hardin or temporarily locate within Hardin. For the other construction related activities with this project, the employees would likely be existing residents in the area and would likely not be moving to Hardin. Therefore, the RMP facility would have a minor effect on the distribution of population.

I. Demands of Government Services

Demands on government services from this facility would be minor because the facility would require some, but not extensive, government services and would be a tax paying entity for both state and local tax bases. Minor increases would be seen in traffic on existing roads in the area while the facility is operating, as the coal used in the process would be transported by truck. The facility would also make use of the Hardin municipal wastewater treatment plant and would pay fees for such municipal services.

The acquisition of the appropriate permits by the facility (including local building permits and a state air quality permit), the permits for the associated activities of the project, and compliance verification with those permits would also require minor services from the government.

The construction of the transformer and transmission lines would have no impact on government services.

J. Industrial and Commercial Activity

The RMP facility would represent a moderate increase in industrial activity in the area. The facility would operate 24 hours a day and 7 days per week generating electricity. The level of activity associated with the RMP facility would probably be similar to that of the Holly Sugar plant when it was operating. Other industrial activity in the area includes the Cenex bulk storage facility, just north of the proposed RMP site.

K. Locally Adopted Environmental Plans and Goals

The nearest nonattainment areas with respect to air quality are the Billings CO Nonattainment Area (approximately 45 miles to the west), the Laurel SO_2 Nonattaiment Area and associated SO_2 state implementation plan area (including Billings, approximately 45 miles to the west), and the Lame Deer PM_{10} Nonattainment Area (approximately 46 miles to the east). Based on the air quality modeling performed, the RMP project would not significantly impact either of those nonattainment areas and therefore, would have no effect on any locally adopted environmental goals and plans associated with those two areas.

The Department is unaware of any other locally adopted environmental plans and goals that would be affected by the facility or the other portions of the project as identified at the beginning of this EA.

L. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor because several new full-time employment opportunities would result, many construction related employment opportunities would be available, and the facility would possibly provide power to Montana consumers as a part of NorthWestern Energy's energy portfolio (if the portfolio is approved as it currently reads).

The RMP project would result in additional jobs for the Hardin/Big Horn County area. As described in Section 8.G of this EA, the facility would employ approximately 45 full-time people and numerous people during the construction phase. The "day-to-day" normal operation positions and the construction-related positions created by the RMP project would bring additional money into the Hardin and Big Horn County economy.

Recommendation: No EIS is required.

IF an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of a pulverized coal-fired electrical power generation facility. Permit #3185-00 would include conditions and limitations to ensure the facility would operate in compliance with all applicable statutes and regulations. In addition, there would be no significant impacts associated with this proposal.

Other groups or agencies contacted or that may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System - Montana Natural Heritage Program, Montana Department of Revenue

Individuals or groups contributing to this EA: Department of Environmental Quality (Air and Waste Management Bureau, Monitoring and Data Management Bureau, and Resource Protection Planning Bureau); Montana Historical Society – State Historic Preservation Office; Natural Resource Information System - Montana Natural Heritage Program; Department of Revenue

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